

REMARKS

This Amendment and Response to Non-Final Office Action is being submitted in response to the non-final Office Action mailed September 20, 2005. Claims 1-20 are pending in the Application.

Claim 16 stands objected to due to a minor informality regarding the “currently amended” status. Claims 1-2, 4-9, 11-12, and 14-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Usuba et al. (U.S. Patent No. 6,614,754) in view of Richardson (U.S. Patent No. 5,479,608). Claims 3 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Usuba in view of Richardson as applied to Claims 1-2, 4-9, 11-12, and 14-19, and further in view of Tanaguchi (U.S. Patent No. 6,122,250). Claims 10 and 20 stand rejected as being unpatentable over Usuba et al. in view of Richardson as applied to Claims 1-2, 4-9, 11-12, and 14-19, and further in view of de Boer et al. (U.S. Patent No. 6,259,837).

In response to the above objection, the Claims have been amended. Claim 16 has been amended to correct the minor informality. This amendment is fully supported in the Specification, Drawings, and Claims of the Application and no new matter has been added. Based upon the amendment, reconsideration of the Application is respectfully requested in view of the following remarks.

Objection of Claim 16 – Minor Informality:

Claim 16 stands objected to due to a minor informality regarding the “currently amended” status. The status identifier “Currently Amended” has been added to Claim 16 to properly identify the claim.

Rejection of Claims 1-2, 4-9, 11-12, and 14-19 Under 35 U.S.C. 103(a) – Usuba et al. and Richardson:

Claims 1-2, 4-9, 11-12, and 14-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Usuba et al. in view of Richardson.

Specifically, in regard to Claims 1 and 11, Examiner states that Usuba et al. disclose a method (Claim 11) and a network (Claim 1) comprising a processor performing steps similar to those of the method of Claim 1. Examiner states that the process of “obtaining protection information specifying a protection mechanism to be implemented on the network” is disclosed in Usuba et al. (col. 3, lines 25-37). Also, although Examiner states that Usuba et al. fail to explicitly disclose the “facility fault protection (FFP), Examiner notes that this is well known in the art and is taught in Richardson (col. 2, lines 27-31; col. 5, lines 1-13).

In regard to Claims 2 and 12, Examiner states that Usuba et al. disclose, in addition to the base Claims 1 and 11, “wherein the protection mechanism is selected from a group consisting of bi-directional line switched ring (BLSR) protection mechanism, unidirectional path switched ring (UPSR) protection mechanism, 1:1 protection mechanism and 1+1 linear protection mechanism (col. 1, lines 33-40).”

In regard to Claims 4 and 14, Examiner states that, in addition to the base Claims 2 and 12, the combination of Usuba et al. and Richardson further discloses, “wherein the provisioning comprises FFP provisioning (Richardson: col. 2, lines 27-31; col. 5, lines 1-13); wherein the protection mechanism is at least of 1+1 linear protection and 1:1 linear protection (Richardson: col. 1, lines 56-67).” Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the invention to include the 1+1 or 1:1 protection for the purpose of providing a protection path in the network should a failure occur.

In regard to Claims 5 and 15, Examiner states that in addition to the base Claims 2 and 12, Usuba further discloses, “wherein the protection method is BLSR (Usuba et al.: col. 1, lines 33-40) and the provisioning comprises TDMG (Usuba et al. col. 2, lines 11-18) and FFP provisioning (Richardson: col. 12, lines 32-38).”

In regard to Claims 6 and 16, in addition to the base features in Claims 5 and 15, Examiner states that Usuba et al. further disclose “wherein the TDMG provisioning includes determining and provisioning a ring map for each network element of eh network (Usuba: col. 4, lines 32-35).”

In regard to Claims 7 and 17, in addition to the base Claims 6 and 16, Usuba further discloses “wherein each network element includes at a least a primary slot and optionally a secondary slot, wherein the ring map for each network element is determined by traversing the network elements protected by the BLSR protection mechanism from and in the direction of the primary slot (Usuba: col. 4, lines 26-31).”

In regard to Claims 8 and 18, in addition to the features in base Claims 6 and 16, Examiner states that Usuba et al. further disclose “wherein the ring map is stored by each network element (Usuba: col. 4, lines 32-35).”

In regard to Claims 9 and 19, in addition to the features in base Claims 6 and 16, Examiner states that Usuba et al. further disclose “wherein the TDMG provisioning includes assigning an identification to each node to facilitate in determining the ring map for each network element (Usuba: Figures 8 and 9).”

In response to the rejection of Claims 1 and 11, Applicants note that Usuba et al. do not teach or suggest the step of obtaining protection information specifying a protection mechanism to be implemented on the network.

Examiner states that Usuba et al. disclose the step of “obtaining protection information specifying a protection mechanism to be implemented on the network” in col. 3, lines 25-37. Here Usuba et al. disclose “in accordance with an instruction from an OS (Operation System), i.e. an apparatus for controlling the entire system and a state of a transmission line such as a fiber interruption, a path switching control unit 25 illustrated in FIG. 4 **determines whether or not the Span Switching or the Ring Switching is executed**, then informing the cross connect unit 20 of the switching command. Receiving the switching command from the path switching control unit 25, the cross connect unit 20 performs a switching of the path in correspondence with the type of the switching command such as the Ring Switching, the Span Switching or the Full Pass Through.” (Emphasis added)

Applicants submit, however, that the Usuba et al. disclosure merely teaches the switching of a path when a failure occurs. For example, in Usuba et al., as shown in Figure 2 and as taught in col. 2, lines 11-18, when the working channel time slot #1 13 fails as a result of a fiber interruption, between Node D and Node E, the path switching control unit 25, in accordance with an instruction from an operating system, selects Span Switching to enable the Node D and Node E to switch the path. Or in Usuba et al., as shown in Figure 3 and taught in col. 2, lines 26-42, when a failure takes place on both the working channel 13 and the protection channel 14 between Node D and Node E, Node D loops and switches the path, so that the path will be transmitted in the opposite direction. This is referred to as Ring Switching. However, no teaching of obtaining information that allows the system to specify and implement throughout the network a particular protection mechanism is taught by Usuba et al.

In contrast, the present invention uses an automatic provisioning process performed by the network management system that **includes logic to determine the choice of automatic protection switch (APS) schemes from which the administrator can**

choose based on the information corresponding to the SONET network being provisioned (Page 16, lines 6-9). This clearly differs from Usuba et al. who do not teach obtaining information that dictates what protection mechanism the network will implement.

In addition, in response to the rejection of Claims 1 and 11, Applicants note that Usuba et al. do not teach or suggest the step “automatically provisioning at least one of time-division multiplexing group (TDMG) and facility fault protection (FFP) depending upon the protection mechanism to be implemented on the network.” In the embodiments defined by Claims 1 and 11, ***the provisioning of the TDMG and FFP is dependent upon the protection mechanism specified and implemented in the network.*** Usuba et al. merely teach path switching during a failure. Additionally, the present invention provides not only the ability to choose a bi-directional line switched ring (BLSR) protection mechanism, but also the ability to choose a unidirectional path switched ring (UPSR) protection mechanism and 1:1 or 1+1 linear protection mechanism. If BLSR, then TDMG and FFP are provisioned. If UPSR, then TDMG is provisioned. If 1:1 or 1+1 linear, then FFP is provisioned. (Page 16, lines 6-17; Figure 6). Furthermore, not only can any one of these protection mechanisms be selected, it is noted that a given network may implement more than one type of protection scheme (Page 16, lines 17-18). This further distinguishes the present invention over Usuba et al.

In further response to the rejection of Claims 1 and 11, Applicants note that although Richardson teaches “group facility protection”, Richardson fails to make up for the deficiencies with Usuba et al. discussed above.

Richardson teaches an invention that “provides cost effective facility protection capability, where one protection path can protect multiple member paths assigned to the same first/third stage, or input/output ‘bay’” (Col. 14, lines 41-44). Additionally, Richardson teaches that ***“group facility protection is effected upon detection of an error***

condition, by the cross-connect requesting the other (responding) cross-connect to bridge the facility to the protection path, which it effects. Upon the requesting node receiving the valid facility, its input stage switches to the protection port to receive the facility. After the switch, the requesting node monitors the member port from which the facility was previously being received a valid signal has continued for a specified time, responsive to which the requesting node switches back to the original member port and instructs the responding node to release the bridge” (Col. 3, lines 19-29; emphasis added). In Richardson, the “group facility protection” taught is “effected upon detection of an error condition.” This, like in Usuba et al., merely teaches the switching of a path when a failure occurs.

In contrast, as mentioned above, the present invention uses an automatic provisioning process performed by the network management system that ***includes logic to determine the choice of automatic protection switch (APS) schemes from which the administrator can choose based on the information corresponding to the SONET network being provisioned*** (Page 16, lines 6-9). Furthermore, based on the protection scheme, various process steps take place in which FFP may or may not be chosen. For example, if the protection scheme is BLSR, then TDMG and FFP are provisioned. If the protection scheme is UPSR, then TDMG is provisioned. If the protection scheme is 1:1 or 1+1 linear protection, then FFP is provisioned.

This clearly differs from Usuba et al. and Richardson who do not teach obtaining information that dictates what protection mechanism the network will implement. The novelty in the present invention, as defined by Claims 1 and 11, is that ***the provisioning of the TDMG and FFP is dependent upon the protection mechanism specified and implemented in the network.***

Therefore, in view of the above, applicants respectfully submit that Usuba et al. fail to teach each and every feature of independent Claims 1 and 11 as required and that Richardson fails to make up for deficiencies with Usuba et al.

Claims 2 and 4-9 are dependent claims either directly or ultimately dependent on Claim 1. Claims 12 and 14-19 are dependent claims either directly or ultimately dependent on Claim 11. Based on the same unique and novel features of the present invention as described above, namely that Claims 1 and 11, have unique and patentable novel features, it is respectfully asserted that these dependent claims are now in condition for allowance.

Therefore, Applicant submits that the rejection of Claims 1-2, 4-9, 11-12, and 14-19 under 35 U.S.C. 103(a) as being unpatentable over Usuba et al. in view of Richardson has now been overcome and respectfully requests that this rejection be withdrawn.

Rejection of Claims 3 and 13 Under 35 U.S.C. 103(a) – Usuba et al., Richardson, and Tanaguchi:

Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usuba in view of Richardson as applied to Claims 1-2, 4-9, 11-12, and 14-19, and further in view of Tanaguchi (U.S. patent No. 6,122,250).

Specifically, in regard to Claims 3 and 13, Examiner states that, in addition to the base Claims 2 and 12, the combination of Usuba and Richardson further discloses, “the provisioning comprises TDMG provisioning (Usuba: col. 2, lines 11-8.” However, the combination lacks what Taniguchi discloses, “wherein the protection mechanism is UPSR (Tanaguchi: col. 3, lines 46-58).” Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the invention to include the UPSR protection mechanism for the purpose of providing a protection path in the network

should a failure occur. Examiner also states, “the motivation for providing a protection path in the network is so that if a failure does occur (as in Tanaguchi, figure 31C), then the communication between nodes can be maintained (as in Tanaguchi, figure 31D).”

Claim 3 is a dependent claim either directly or ultimately dependent on Claim 1. Claims 13 is a dependent claim either directly or ultimately dependent on Claim 11. Based on the same unique and novel features of the present invention as described above, namely that Claims 1 and 11, have unique and patentable novel features, it is respectfully asserted that these dependent claims are now in condition for allowance.

Therefore, Applicant submits that the rejection of Claims 3 and 13 under 35 U.S.C. 103(a) as being unpatentable over Usuba et al. in view of Richardson and further in view of Tanaguchi has now been overcome and respectfully requests that this rejection be withdrawn.

Rejection of Claims 10 and 20 Under 35 U.S.C. 103(a) – Usuba et al., Richardson, and de Boer et al:

Claims 10 and 20 stand rejected as being unpatentable over Usuba et al. in view of Richardson as applied to Claims 1-2, 4-9, 11-12, and 14-19, and further in view of de Boer et al. (U.S. Patent No. 6,259,837).

Specifically, in regard to Claims 10 and 20, Examiner states that, in addition to the base Claims 2 and 12, the combination of Usuba and Richardson further discloses, “wherein the protection mechanism is one of BLSR and UPSR (Usuba: col. 1, lines 33-40) and wherein the provisioning includes TDMG provisioning (Usuba: col. 2, lines 11-18).” However, the combination lacks what de Boer et al. disclose, “the TDMG provisioning includes bandwidth provisioning to allow a plurality of bandwidth portions, each bandwidth portion being provisioned with a different mechanism (de Boer et al.:

col. 5, lines 4-18).” Examiner states that it would have been obvious to one of ordinary skill in the art at the time of the invention to include the partial bandwidth provisioning implementing a protection mechanism for the purpose of only addressing the failure of the specified bandwidth. Examiner also states, “the motivation being that the other portions of bandwidth not affected by the failure will be left alone.”

Claim 10 is a dependent claim either directly or ultimately dependent on Claim 1. Claim 20 is a dependent claim either directly or ultimately dependent on Claim 11. Based on the same unique and novel features of the present invention as described above, namely that Claims 1 and 11, have unique and patentable novel features, it is respectfully asserted that these dependent claims are now in condition for allowance.

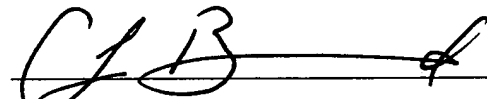
Therefore, Applicant submits that the rejection of Claims 10 and 20 under 35 U.S.C. 103(a) as being unpatentable over Usuba et al. in view of Richardson and further in view of de Boer et al. has now been overcome and respectfully requests that this rejection be withdrawn.

CONCLUSION

Applicants would like to thank Examiner for the attention and consideration accorded the present Application. Should Examiner determine that any further action is necessary to place the Application in condition for allowance, Examiner is encouraged to contact undersigned Counsel at the telephone number, facsimile number, address, or email address provided below. It is not believed that any fees for additional claims, extensions of time, or the like are required beyond those that may otherwise be indicated in the documents accompanying this paper. However, if such additional fees are required, Examiner is encouraged to notify undersigned Counsel at Examiner's earliest convenience.

Respectfully submitted,

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